

# 04

## Navigate people with comfortable traveling route

~Dynamic migration scheduling for greater visitor satisfaction~

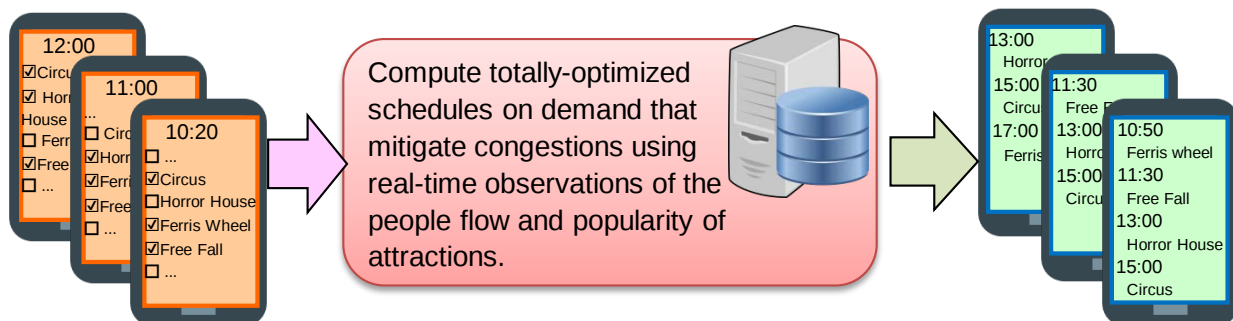
### Abstract

We have developed a technology to dynamically compute and recommend comfortable migration schedules for customers in such as amusement parks based on **spatio-temporal prediction of near-future congestion levels and resource demands** by using **real-time observation of the people flow and preferred attraction information**. This technology is aimed at equalizing waiting time at attraction queues in a venue and maximizing customer satisfaction by real-time processing of spatio-temporal prediction of people flow and mathematical optimization of visitor's migration schedules. It is also expected to support stable control of infrastructure and optimal resource management in and around venues such as leisure spots, airports, and commercial facilities.

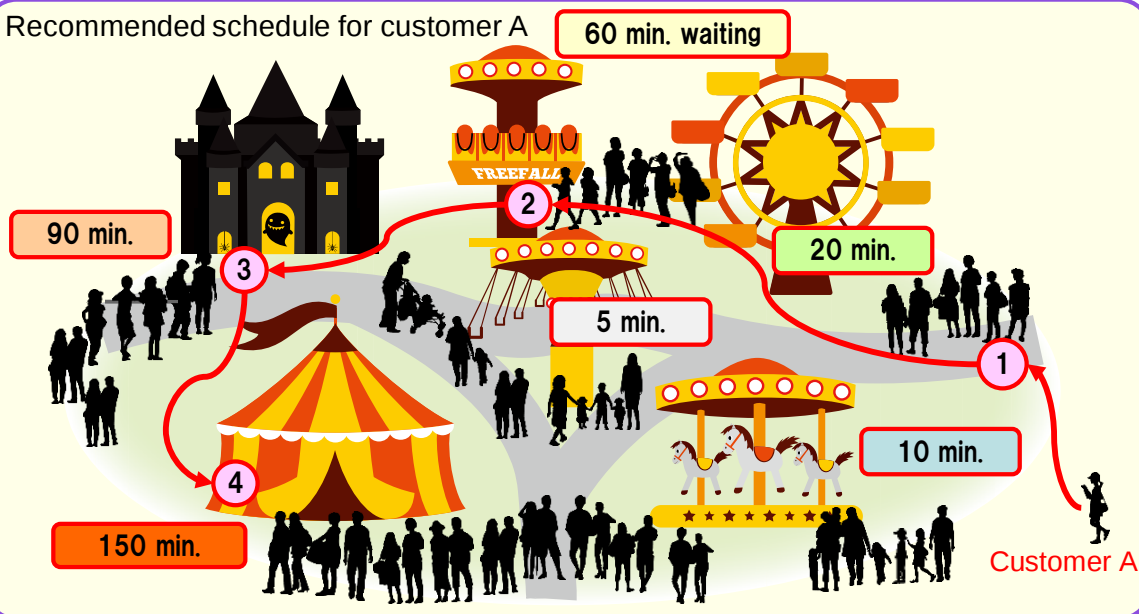
Each customer sends a preferred attraction list

### Dynamic migration scheduling

Recommended schedules are delivered to each customer



### Recommended schedule for customer A



### [Reference]

- [1] N. Ueda, F. Naya, H. Shimizu, T. Iwata, M. Okawa, H. Sawada, "Real-time and proactive navigation via spatio-temporal prediction," in *Proc. 2015 ACM International Symposium on Wearable Computers (UbiComp)*, pp. 1559-1566, 2015.
- [2] G. Hernandez-Maskivker, G. Ryan, M. Blazey, M. Pàmies, "Fast lines at theme parks," *International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering*, Vol. 7, No. 6, 2013.

### [Contact]

**Naonori Ueda** Ueda Research Laboratory, **Futoshi Naya** Learning and Intelligent Systems Research Group, Innovative Communication Laboratory  
E-mail : {ueda.naonori, naya.futoshi} (at)lab.ntt.co.jp